ESC/VP21 Command User's Guide for Business Projectors

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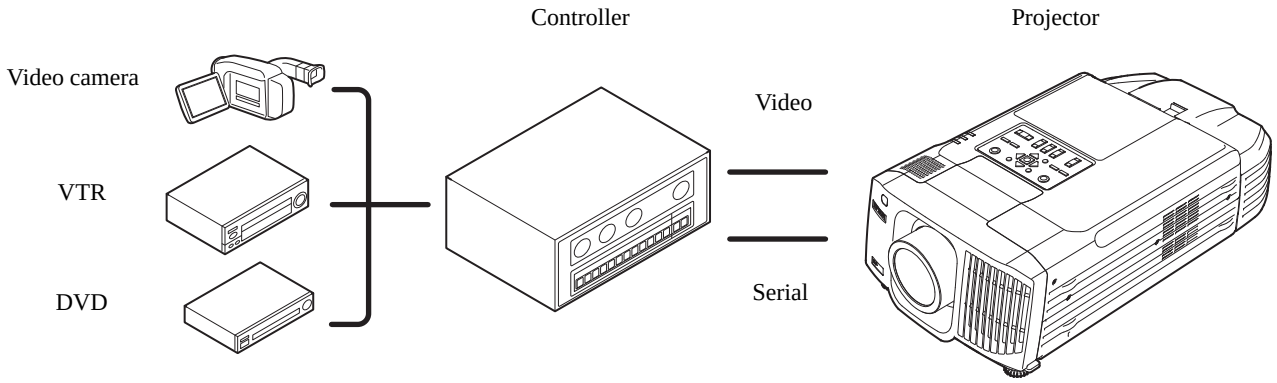
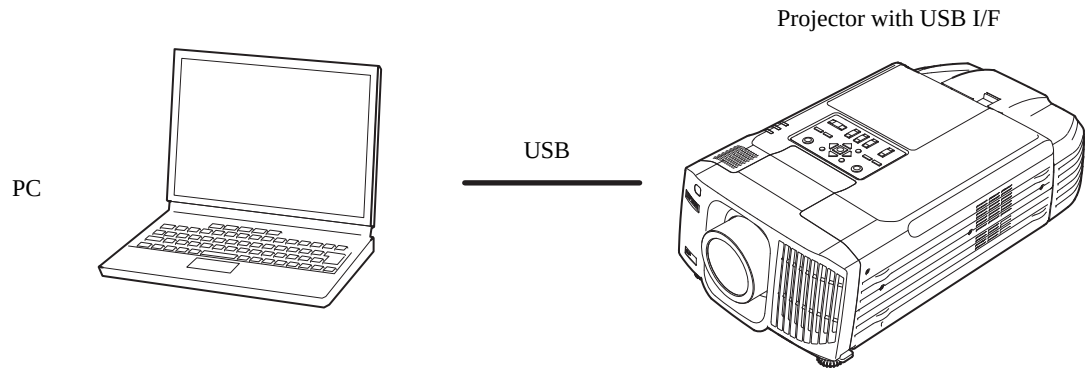
1.Introduction to ESC/VP21

ESC/VP21 is a control command and protocol for Epson projectors, which is used for A/V controller to control and monitor Epson projectors. The command codes are comprised of ASCII codes. Therefore the command codes can be understood very easily and you can easily control projectors using a PC with a terminal emulator such as Microsoft Hyper terminal.
Since ESC/VP21 is independent of communication protocols,Serial, USB or TCP/IP network can be used to transmit the commands to projectors.

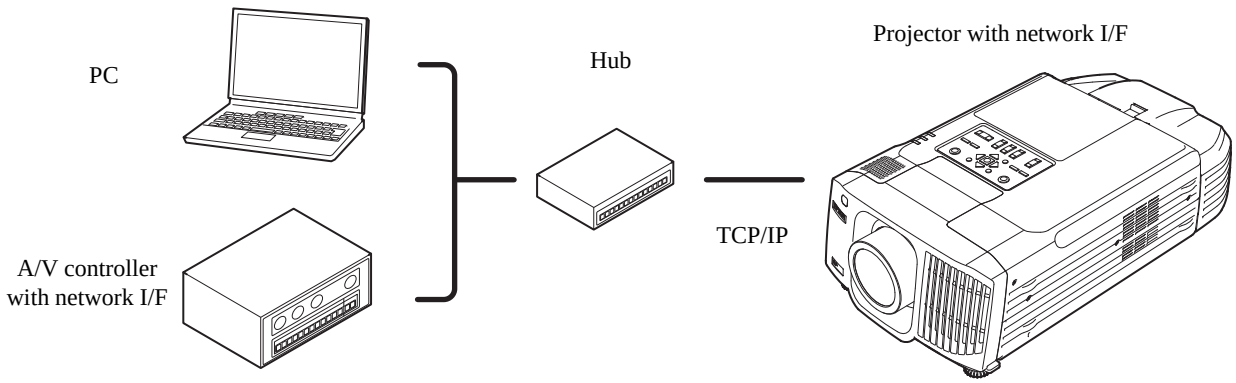
•Serial connection
A/V controllers normally use a serial connection to control projectors. Refer to Appendix for details.



•USB connection
A USB interface can be used to control a projector. Refer to Appendix for details.



•Network connection
After establishing a TCP session, ESC/VP21 commands can be sent to projectors. Refer to ESC/VP.net protocol manual.



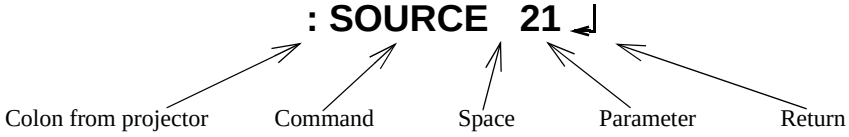
2.ESC/VP21 Command Formats

2.1.Set command format

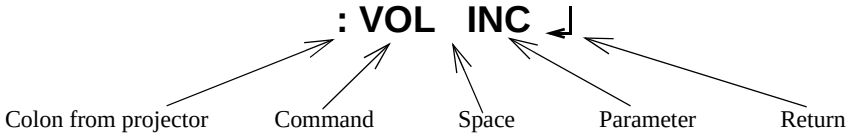
A set command consists of a command and a parameter. Projector returns a colon after executing the command.
There are two types of parameters. One is fixed such as ON, OFF, or 21.Other is a step parameter such as INC, DEC or INIT.

INC increments the parameter by one.
DEC decrements the parameter by one.
INIT initializes the parameter.

Set command example 1



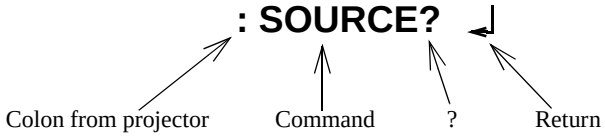
Set command example 2



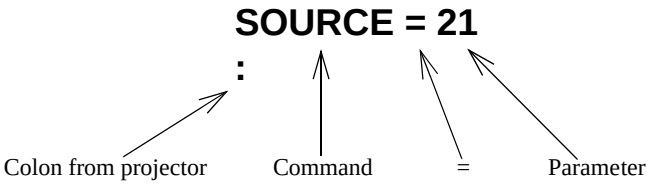
2.2.Get command format

A get command consists of a command and ?. Projector returns a response parameter after executing the command.

Get command example



Response parameter example



2.3.Null command

The null command is a command code of the return key code (Hex 0D). Projector returns a colon. The null command can be used to confirm that the projector is in operation.

2.4.Illegal commands

Projector returns “ERR” and a return key code (Hex 0D) and a colon when it receives invalid commands.

ERR
:

3.Applicable Models

EMP-600/800/810/811/820,30/52,720/730/520,73/53/74/54,735,8300/9300,7800/7850,S1/S1H,61/81,830/835,740/745/**732/737**,821/828,7900/**7950**,**S3/S4,765/760,755/750,62/82/X3,1715/1710/1705/1700,6000/6100,1815/1810,S5/X5/83/822,260/280/6110/6010,400W/410W,83+/822+, 1825, EX90,** G5350/G5300/G5150/G5100/G5200W/G5000, S6/X6/W6, 1735W/1730W/1725/1720,
Z8000WU/Z8050W

4.Projector state and commands

4.1.Standby state (operation indicator is in orange)

When a projector is in a standby state, executable commands depend on projector models and standby configuration (network on, network off). Refer to the following table.

Models	Configuration	Executable Commands
61/81 830/835 740/745/732/737 821/828 S3/S4 765/760/755/750 62/82/X3(76) 6100/6000 1715/1710/1705/1700 1815/1810/1825 S5/X5/83/822/83+/822+/EX90 260/280 6110/6010 400W/410W G5350/G5300/G5150/G5100/G5200W/G5000 S6/X6/W6 1735W/1730W1725/1720 84/85/824/825/826W Z8000WU/Z8050W	network on/off	PWR ON , PWR? , LAMP?
7800/7850/ 8300/9300 7900/7950 (note3)	network on	PWR ON , PWR? , SOURCE? , Null command (note1)
	network off	PWR ON (note2)
Others	-	

(note1) EMP-61/81/830/835/740/745/821/828 returns "ERR" when it received commands other than PWR ON, PWR? , LAMP? and NULL commands.
(note2) EMP-7800/7850 returns "ERR" when it received commands other than PWR ON, PWR? , SOURCE? and NULL commands.
(note3) EMP-8300/9300 returns "ERR" when it received commands other than PWR ON, SOURCE xx, PWR? , SOURCE? And NULL commands.

All projectors returns "ERR" when the command format is not good.
All projectors returns "ERR" when the projector is not ready to reply the command.
Null command is command name for "ENTER" or "RETURN" key of the keyboard
The reply is ":"

Models	Power Consumption	
	Network off	Network on
78007850 7900/7950	about 1.5W	about 47W
8300/9300	about 1.5W	about 60W
8300+ELPXP01	about 1.5W	about 60W
830/835	about 1.0W	about 38W
740/745 732/737 760/765 750/755	about 4.0W	about 35W (only 745/737/765/755)
61/81,821/828	about 5.0W	about 35W

Models	Power Consumption	
	Network off	Network on
62/82 X3(76)	about 4.0W about 5.0W: 230V area	about 25W about 23W: 120V area (only 62/82)
6100/6000	about 0.4W	about 10W
1715/1705	about 3.8W	about 18W
1815/1810/1825	about 2.6W	about 12W
S5/X5/83/822/83+/822+/EX90	about 4.1W	about 5W (only 83/822)
260/280	about 4.1W	about 4.1W (only 280)
6110/6010	about 0.4W	about 10.4W
400W/410W	about 4.2W	about 4.9W
G5350/G5300/G5150/G5100/ G5200W/G5000	about 0.4W	about 10W
S6/X6/W6	about 3W	-
1735W/1730W/1725/1720	about 4.0W	about 9.0W
84/85/824/825/826W	about 5.0W	about 12W
Z8000WU/Z8050W	TBD	TBD

4.2.Power on state (operation indicator is in green)

All commands are executable.

5.Error Status

A projector returns the error status when a projector receives "ERR?" command.

The following projectors can return the error status while the projectors become the cool-downs status at an error and the projectors become the error status after cooling down.

EMP-1700/1705/1710/1715, 6000/6100/6110/6010, 1815/1810/1825, S5/X5/83/822, 260/280, 400W/410W
EB-G5000/G5100/G5150/G5200W/G5300/G5350
And later models.

[The other models except the above models]
The models except the above models can return the error status while the projectors become the cool-downs status at an error.

The following table shows the return codes and the meaning of error status.

Command	Returne code	
ERR?	00	:There is no error or the error is recovered
	01	: Fan error
	03	: Lamp failure at power on
	04	: High internal temperature error
	06	: Lamp error
	07	: Open Lamp cover door error
	08	: Cinema filter error
	09	: Electric dual-layered capacitor is disconnected
	0A	: Auto iris error
	0B	: Subsystem Error
	0C	: Low air flow error
	0D	: Air filter air flow sensor error
	0E	: Power supply unit error (Ballast)
	0F	: Shuter error
	10	: Cooling system error (peltiert element)
	11	: Cooling system error (Pump)

6.Command transmission timing

6.1.Standby state

1) For all model with the standby configuration of "network on"
The first command can be sent anytime and the subsequent commands should be sent after receiving a colon from the projector.
2) Other than 1)
PWR ON can be sent any time.

6.2.Power-on state

A command should be sent after receiving the colon of the previous command from the projector. The following is an exception. When the PWR OFF command is sent to 7800/7850/8300/9300 with the standby configuration of “network off”, the subsequent command should be sent 10 seconds after the colon is received.
In case that you can not wait for the colon and send a command after receiving it, instead send a command after the execution time listed in the following table.

Command	Models	Execution time
PWR ON	-	40 seconds (note 1)
	830/835 (note 5) 7900/7950/740/745	20 seconds
	61/81/821/828/S3/S4	25 seconds
PWR OFF (note 4)	600/800/810/811/820	130 seconds
	All others	50 seconds
	830/835	10 seconds
	740/745 821 732/737	20 seconds
	S3/S4 765/760 755/750 62/82/X3(76) 6100/6000 1715/1710/1705/172 1815/1810/1825 S5/X5/83/822/83+/822+/EX90 260/280 6110/6010 400W/410W G5350/G5300/G5150/G5100/ G5200W/G5000 S6/X6/W6 1735W/1730W/1725/1720 84/85/824/825/826W Z8000WU/Z8050W	5 seconds
SOURCE (note3)	-	5 seconds (note 2)
All others	-	3 seconds

(note1) When a projector receives the PWR ON command, it tries to ignite the lamp by activating the ballast unit. In case that the lamp fails to be ignited, it tries to ignite the lamp three times at maximum.
When the lamp fails to be ignited three times, it is a lamp failure.
The projector returns a colon within 40, 70 and 100 seconds when successful in the first, second and third times respectively.
(note2) When the input video sync signal is stable, a colon is returned within 5 seconds. However, it may take more than 5 seconds when the input video sync signal is unstable.
(note3) Projector initiates the process of the input video signal recognition when it receives a SOURCE command. If the signal of the video input is changing (for example, from SVGA to XGA by A/V controller) during the process of the input video signal recognition, the projector returns “ERR”.
(note 4) Projectors execute the PWR OFF command after they start completely.
(note 5) Projectors might return "ERR" when "Quick Setup" and "Auto Focus" functions are set to ON.

6.3.Warning and abnormal cases

Projector executes commands normally while a warning indicator such as a high temperature warning is on.
Projector does not execute commands nor return a colon when the projector is in an abnormal state such as a lamp failure and abnormal high temperature.
As for EMP-6100/6000, EMP-1715/1710/1705/1700, EMP-1815/1810, EMP-S5/X5/83/822 and the following models, when an abnormal state is continued for 130 seconds after, PWR ON command becomes possible.

7.Command list and Applicable Models

7.1.Command table 1 (Fixed parameter)

(**O**Supported **-**Not supported)

Function	Command	600/800/ 810/811/ 820	720/730/ 520/735	30/52	73/53 74/54	8300/ 9300	7800/ 7850/ 7900/ 7950	S1/S1H	61/81	830/835
Power control	PWR	O	O	O	O	O	O	O	O	O
Input source	SOURCE	O	O	O	O	O	O	O	O	O
PinP setting	PINP	O	-	-	-	O	O	-	-	O
A/V Mute Screen	MSEL	O	O	O	O	O	O	O	O	O
Auto Keystone	AUTOKEYSTONE	-	O	-	O	-	O	-	O	O
Aspect setting	ASPECT	-	-	-	O	O	O	O	-	O
Color Mode	CMODE	O	O	O	O	O	O	O	O	O
Lamp hour	LAMP?	O	O	O	O	O	O	O	O	O
Brightness level	LUMINANCE	-	-	-	O	O	O	-	O	O
A/V Mute	MUTE	O	O	O	O	O	O	O	O	O
Freeze	FREEZE	-	O	O	O	O	O	O	O	O
Rear Projection	HREVERSE	O	O	O	O	O	O	O	O	O
Ceiling	VREVERSE	O	O	O	O	O	O	O	O	O
Audio Input	AUDIO	O	-	O	O	-	O	-	-	-
Key operation	KEY	O	O	O	O	O	O	O	O	O

Function	Command	740/745 732/ 737765/ 760 755/750	821/828	S3/X3/ S4	62/82	6100/ 6000	1715/ 1710/ 1705/ 1700	1815/ 1810/ 1825	S5/X5/ 83/822/ 83+/ 822+/ EX90	260/280
Power control	PWR	O	O	O	O	O	O	O	O	O
Input source	SOURCE	O	O	O	O	O	O	O	O	O
PinP setting	PINP	-	-	-	-	-	-	-	-	-
A/V Mute Screen	MSEL	O	O	O	O	O	O	O	O	O
Auto Keystone	AUTOKEYSTONE	O	O	-	O	-	-	-	O (no S5)	O (no 260)
Aspect setting	ASPECT	O	-	O	O	O	O	O	O	O
Color Mode	CMODE	O	O	O	O	O	O	O	O	O
Lamp hour	LAMP?	O	O	O	O	O	O	O	O	O
Brightness level	LUMINANCE	O	O	O	O	O	O	O	O	O
A/V Mute	MUTE	O	O	O	O	O	O	O	O	O
Freeze	FREEZE	O	O	O	O	O	O	O	O	O
Rear Projection	HREVERSE	O	O	O	O	O	O	O	O	O
Ceiling	VREVERSE	O	O	O	O	O	O	O	O	O
Audio Input	AUDIO	-	-	-	-	O -	-	-	-	-
Key operation	KEY	O	O	O	O	O	O	O	O	O
Closed Caption	CCAP	-	-	-	-	O	-	-	-	-
Air Filter Alarm Timer	FLWARNING	-	-	-	-	O	-	-	-	-
Air Filter Timer	FILTIME	-	-	-	-	O	-	-	-	-
Air Filter Usage Time	FILTER	-	-	-	-	O	-	-	-	-

Function	Command	6110/ 6010	400W/ 410W	G5350/ G5300/ G5150/ G5100/ G5200W/ G5000	S6/X6/ W6	1735W/ 1730W/ 1725/ 1720	84/85/ 824/825/ 826W	Z8000WU /Z8050W
Power control	PWR	O	O	O	O	O	O	O
Input source	SOURCE	O	O	O	O	O	O	O
PinP setting	PINP	-	-	-	-	-	-	-
A/V Mute Screen	MSEL	O	O	O	O	O	O	O
Auto Keystone	AUTOKEYSTONE	-	-	-	-	-	-	-
Aspect setting	ASPECT	O	O	O	O	O	O	O
Color Mode	CMODE	O	O	O	O	O	O	O
Lamp hour	LAMP?	O	O	O	O	O	O	O
Brightness level	LUMINANCE	O	O	O	O	O	O	O
A/V Mute	MUTE	O	O	O	O	O	O	O
Freeze	FREEZE	O	O	O	O	O	O	O
Rear Projection	HREVERSE	O	O	O	O	O	O	O
Ceiling	VREVERSE	O	O	O	O	O	O	O
Audio Input	AUDIO	O -	-	-	-	-	-	-
Key operation	KEY	O	O	O	O	O	O	O
Closed Caption	CCAP	O	O	O	O	O	O	O
Air Filter Alarm Timer	FLWARNING	O	-	-	-	-	-	-
Air Filter Timer	FILTIME	O	-	-	-	-	-	-
Air Filter Usage Time	FILTER	O	-	-	-	-	-	-

7.2.Command table 2 (Step parameter)

(**O**Supported **-**Not supported)

Function	Command	600/800/ 810/811/ 820	720/730/ 520/735	30/52	73/53 74/54	8300/ 9300	7800/ 7850/ 7900/ 7950	S1/S1H	61/81
Adjust the volume	VOL	**O**	**O**	**O**	**O**	**O**	**O**	**O**	**O**
Adjust the treble setting (Adjust the tone setting)	TONEH	**O**	(**O**)	(**O**)	**-**	**O**	**O**	**-**	**-**
Adjust the bass setting	TONEL	**O**	**-**	**-**	**-**	**O**	**O**	**-**	**-**
Set Brightness	BRIGHT	**O**	**O**	**O**	**O**	**O**	**O**	**O**	**O**
Set Contrast	CONTRAST	**O**	**O**	**O**	**O**	**O**	**O**	**O**	**O**
Set Tint	TINT	**O**	**O**	**O**	**O**	**O**	**O**	**O**	**O**
Set vertical keystone value	VKEYSTONE	**O**	**O**	**O**	**O**	**O**	**O**	**O**	**O**
Set horizontal keystone value	HKEYSTONE	**O**	**-**	**-**	**-**	**-**	**O**	**-**	**-**

Function	Command	830/835	740/745 732/ 737/ 765/760 755/750	821/828	S3/X3/ 62/82/ S4	6100/ 6000	1715/ 1710/ 1705/ 1700	1815/ 1810/ 1825	S5/X5/ 83/822/ 83+822+ /EX90
Adjust the volume	VOL	**O**	**O**	**O**	**O**	**O**	**O**	**O**	**O**
Adjust the treble setting (Adjust the tone setting)	TONEH	**O**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Adjust the bass setting	TONEL	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Set Brightness	BRIGHT	**O**	**O**	**O**	**O**	**O**	**O**	**O**	**O**
Set Contrast	CONTRAST	**O**	**O**	**O**	**O**	**O**	**O**	**O**	**O**
Set Tint	TINT	**O**	**O**	**O**	**O**	**O**	**O**	**O**	**O**
Set vertical keystone value	VKEYSTONE	**O**	**O**	**O**	**O**	**O**	**O**	**O**	**O**
Set horizontal keystone value	HKEYSTONE	**O**	**-**	**-**	**-**	**-**	**-**	**O**	**-**

Function	Command	260/280	6110/ 6010	400W/ 410W	G5350/ G5300/ G5150/ G5100/ G5200W/ G5000	S6/X6/ W6	1735W/ 1730W/ 1725/ 1720	84/85/ 824/825/ 826W	Z8000WU/ Z8050W
Adjust the volume	VOL	**O**	**O**	**O**	**O**	**O**	**O**	**O**	**-**
Adjust the treble setting (Adjust the tone setting)	TONEH	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Adjust the bass setting	TONEL	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Set Brightness	BRIGHT	**O**	**O**	**O**	**O**	**O**	**O**	**O**	**O**
Set Contrast	CONTRAST	**O**	**O**	**O**	**O**	**O**	**O**	**O**	**O**
Set Tint	TINT	**O**	**O**	**O**	**O**	**O**	**O**	**O**	**O**
Set vertical keystone value	VKEYSTONE	**O**	**O**	**O**	**O**	**O**	**O**	**O**	**O**
Set horizontal keystone value	HKEYSTONE	**-**	**-**	**-**	**O**	**-**	**-**	**-**	**O**
Adjust the zoom	ZOOM	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**O**
Adjust the focus	FOCUS	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**O**
Adjust the vertical lens sift	LENS	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**O**
Adjust the horizontal lens sift	HLENS	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**O**

8.Command Details

8.1.Command table 1 (Fixed parameter)

Set commands	Get commands	Parameter for set (Return code for get)	Models	Function
PWR xx	- - PWR?	ON	All models	Power on
		OFF	All models	Power off
		00 **:** "Standby" at the time of "Network off"	61/81 830/835 740/745 732/737 821/828 7900/7950 S3/S4 765/760 755/750 62/82 6100/6000 1715/1710/1705/1700 1815/1810/1825 S5/X5/83/822/83+/822+/EX90 260/280 6110/6010 400W/410W G5350/G5300/G5150/ G5100/G5200W/G5000 S6/X6/W6 1735W/1730W/1725/1720 84/85/824/825/826W Z8000WU/Z8050W	Return the "Standby" at the time of "Network off" status check
		01 **:** Power on	All models	Return the power on status check
		02 **:** Warm up	6100/6000 1715/1710/1705/1700 1815/1810/1825 S5/X5/83/822/83+/822+/EX90 260/280 6110/6010 400W/410W G5350/G5300/G5150/ G5100/G5200W/G5000 S6/X6/W6 1735W/1730W/1725/1720 84/85/824/825/826W Z8000WU/Z8050W	Return the warm up status check
		03 **:** Cooling down	6100/6000 1715/1710/1705/1700 1815/1810/1825 S5/X5/83/822/83+/822+/EX90 260/280 6110/6010 400W/410W G5350/G5300/G5150/ G5100/G5200W/G5000 S6/X6/W6 1735W/1730W/1725/1720 84/85/824/825/826W Z8000WU/Z8050W	Return the cooling down status check

Set commands	Get commands	Parameter for set (Return code for get)	Models	Function
PWR xx	PWR?	04 **:** "Standby" at the time of "Network on"	7800/7850 8300/9300 61/81 830/835 7900/7950 62/82 6100/6000 1715/1705 1815/1825 83/822/83+/822+ 280 6110/6010 400W/410W G5350/G5300/G5150/ G5100/G5200W/G5000 1735W/1725 84/85/824/825/826W Z8000WU/Z8050W	Return the "Standby" at the time of "Network on" status check
		05 **:** Abnomal Standby	6100/6000 1715/1710/1705/1700 1815/1810/1825 S5/X5/83/822/83+/822+/EX90 260/280 6110/6010 400W/410W G5350/G5300/G5150/ G5100/G5200W/G5000 S6/X6/W6 1735W/1730W/1725/1720 84/85/824/825/826W Z8000WU/Z8050W	After the fixed time passes, an abnormal standby is returned after this machine is abnormally generated.

Set commands	Get commands	Parameter for set (Return code for get)	Models	Function
SOURCE xx	SOURCE?	11 : PC1(analog-RGB) 12 : PC1(digital-RGB) 13 : PC1(RGB-Video) 21 : PC2(analog-RGB) 22 : PC2(RGB-Video RGsB) 23 : Component Video(YCbCr) 24 : Component Video(YPbPr) 41 : Video (RCA) 42 : Video (S)	600/800/810/811/820	Select the input source
		11 : RGB 14 : Input 1(YCbCr) 15 : Input 1(YPbPr) 40 : VIideo 41 : Video(RCA) 42 : Video(S)	30/52 73/53 720/730 S1/S1H	
		11 : RGB 14 : Input 1(YCbCr) 15 : Input 1(YPbPr) 40 : VIideo 41 : Video(RCA) 42 : Video(S) 50 : EasyMP	735	
		10 : INPUT1(D-Sub) 11 : INPUT1(analog-RGB) 13 : INPUT1(RGB-Video) 20 : INPUT2(D-Sub) 21 : INPUT2(analog-RGB) 23 : INPUT2(RGB-Video) 30 : INPUT3(DVI-D) 31 : INPUT3(D-RGB) 40 : Video 41 : Video(RCA) 42 : Video(S) B0 : INPUT4(BNC) B1 : INPUT4(analog-RGB) B2 : INPUT4(RGB-Video) B3 : INPUT4(YCbCr) B4 : INPUT4(YPbPr)	8300/9300	
		10 : INPUT1(D-Sub) 11 : INPUT1(analog-RGB) 13 : INPUT1(RGB-Video) 30 : INPUT3(DVI-D) 31 : INPUT3(D-RGB) 40 : Video 41 : Video(RCA) 42 : Video(S) B0 : INPUT4(BNC) B1 : INPUT4(analog-RGB) B2 : INPUT4(RGB-Video) B3 : INPUT4(YCbCr) B4 : INPUT4(YPbPr)	7800/7850	
		50 : EasyMP	7850/8300+ELPXP01	
		11 : RGB 14 : Input 1(YCbCr) 15 : Input 1(YPbPr) 20 : Input 2 21 : Input 2(RGB) 24 : Input 2(YCbCr) 25 : Input 2(YPbPr) 40 : VIideo 41 : Video(RCA) 42 : Video(S)	54/74	

Set commands	Get commands	Parameter for set (Return code for get)	Models	Function
SOURCE xx	SOURCE?	10 : Input 1 11 : Input 1(RGB) 14 : Input 1(Compornent) 20 : Input 2 21 : Input 2(RGB) 24 : Input 2(Component) 40 : VIideo 41 : Video(RCA) 42 : Video(S)	61/81 821/828 62/82 835/830 6100/6000 1815/1810/1825 83/82283+/822+ 280 6110/6010 400W/410W	Select the input source
		10 : Input 1 11 : Input 1(RGB) 14 : Input 1(Compornent) 40 : VIideo 41 : Video(RCA) 42 : Video(S)	740/745 732/737 S3/S4 765/760 755/750 X3(76) 1715/1710/1705/1700 S5/X5/EX90 260 S6/X6/W6 1735W/1730W/1725/1720	
		50 : Easy MP	745 737 835 1715/1705 1815 G5350 1735W/1725	
		10 : INPUT1(D-Sub) 11 : INPUT1(RGB) 14 : INPUT1(Component) 30 : INPUT3(DVI-D) 31 : INPUT3(D-RGB) 40 : Video 41 : Video(RCA) 42 : Video(S) B0 : INPUT4(BNC) B1 : INPUT4(RGB) B4 : INPUT4(Component)	79007950	
		10 : INPUT1(D-Sub) 11 : INPUT1(RGB) 14 : INPUT1(Component) 20 : INPUT2(D-Sub) 21 : INPUT2(RGB) 24 : INPUT2(Component) 30 : INPUT3(HDMI) 31 : INPUT3(D-RGB) 33 : INPUT3(RBG-Video) 34 : INPUT3(YCbCr) 35 : INPUT3(YPbPr) 40 : Video 41 : Video2(RCA) 42 : Video(S) 45 : Video1(BNC) B0 : INPUT4(5BNC) B1 : INPUT4(RGB) B4 : INPUT4(Component)	G5350 G5300 G5150 G5100 G5200W	

Set commands	Get commands	Parameter for set (Return code for get)	Models	Function
SOURCE xx	SOURCE?	10 : INPUT1(D-Sub) 11 : INPUT1(RGB) 14 : INPUT1(Component) 20 : INPUT2(D-Sub) 21 : INPUT2(RGB) 24 : INPUT2(Component) 40 : Video 41 : Video2(RCA) 42 : Video(S) 45 : Video1(BNC)	G5000	
		10 : INPUT1(D-Sub) 11 : INPUT1(RGB) 14 : INPUT1(Component) 20 : INPUT2(D-Sub) 21 : INPUT2(RGB) 24 : INPUT2(Component) 40 : Video 41 : Video(RCA) 42 : Video(S) 51 : EasyMP (USB Display) 52 : EasyMP (USB 85/824/825/826W only) 53 : EasyMP (LAN 85/825/826W only)	84/85/824/825/826W	
		10 : INPUT1(D-Sub) 11 : INPUT1(Analog RGB) 14 : INPUT1(Component) 30 : INPUT3(DVI-D) 31 : INPUT3(Digital RGB) 34 : INPUT3(Component) 40 : Video 42 : Video(S) 45 : Video1(BNC) 53 : EasyMP (Z8050W only) B0 : INPUT4(5BNC) B1 : INPUT4(Analog RGB) B4 : INPUT4(Component)	Z8000WU/Z8050W	
PINP [source posX posY size] (Ex) PINP␣42␣1␣2␣1	-	source : Video source of sub-screen (Video or S-video) source code posX : X coordinate (0-15)of sub-screen from left Horizontal is divided into 16 (default value is used when omitted) posY : Y coordinate (0-15)of sub-screen from top Vertical is divided into 16 (default value is used when omitted) size : Size of sub-screen 0-4 incremental zoom (default value is used when 0 or omitted)	600/800/810/811/820 7800/7850 8300/9300 830/835* 7900/7950	Set P in P *"830/835" cannot specify a sub-screen. Size should put in “0”.
PINP xx	-	OFF		End PinP

Set commands	Get commands	Parameter for set (Return code for get)	Models	Function
MSEL xx	MSEL?	00 : Black screen 01 : Blue screen 02 : User logo	600/800/810/811/820 730/720/520/735 7800/7850 8300/9300 61/81 830/835 740/745 821 7900/7950 732/737 S3/S4 765/760 755/750 6100/6000 1715/1710/1705/1700 1815/1810/1825 S5/X5/83/822/83+/822+/EX90 260/280 6110/6010 400W/410W G5350/G5300/G5150/ G5100/G5200W/G5000 S6/X6/W6 1735W/1730W/1725/1720 84/85/824/825/826W	Set A/V Mute Screen
AUTOKEYSTONE xx	AUTOKEY- STONE ?	ON : Auto Keystone ON OFF : Auto Keystone OFF	73/53/74/54 735 7800/7850 61/81 830/835 740/745/732/737 821/828 7900/7950 765/760 755/750 62/82 1715/1710/1705/1700 1815/1810/1825 X5/83/822/83+/822+ 280 X6/W6 1735W/1730W/1725/1720 84/85/824/825/826W	Set autokeystone on or off
	-		730/720/520	

Set commands	Get commands	Parameter for set (Return code for get)	Models	Function
ASPECT xx	ASPECT?	10 : 4:3 12 : zoom 4:3 20 : 16:9	74/54 7800/7850 8300/9300 S1/S1H 830/835 7900/7950	Set aspect ratio
		10 : 4:3 20 : 16:9	73/53 735 740/745 732/737 S3/S4 765/760 755/750 62/82/X3(76) 1715/1710/1705/1700	
		In put signal is PC 00 : Nomal 10 : 4:3 20 : 16:9 In put signal is Video 10 : 4:3 20 : 16:9 21 : 16:9 (up) 22 : 16:9 (down)	6100/6000 1815/1810/1825 S5/X5/83/822/83+/822+/EX90 260/280 6110/6010 S6/X6 1725/1720	
		In put signal is PC 00 : Nomal 10 : 4:3 20 : 16:9 60 : Through In put signal is Video1/Video2 10 : 4:3 20 : 16:9 In put signal is HDMI 10 : 4:3 20 : 16:9 30 : Auto 60 : Through	G5350/G5300/G5150/ G5100	
		In put signal is PC 00 : Nomal 20 : 16:9 40 : Full 50 : Zoom 60 : Through In put signal is HDMI 20 : 16:9 30 : Auto 40 : Full 50 : Zoom 60 : Through	G5200W W6	
		In put signal is PC 00 : Nomal 12 : 4:3 20 : 16:9 60 : Through In put signal is Video1/Video2 10 : 4:3 20 : 16:9	G5000	
		In put signal is PC and Video 00 : Nomal 20 : 16:9 30 : Auto 40 : Full 50 : Zoom 60 : Through	400W/410W Z8000WU/Z8050W	

Set commands	Get commands	Parameter for set (Return code for get)	Models	Function
ASPECT xx	ASPECT?	00 : Nomal 20 : 16:9 40 : Full 50 : Zoom 60 : Through	1735W/1730W	
		In put signal is PC 00 : Nomal 12 : 4:3 20 : 16:9 In put signal is Compornent/ S-Video/Video 10 : 4:3 20 : 16:9	84/85/824/825/826W	
CMODE xx	CMODE?	01 : sRGB 02 : Normal 03 : Meeting 04 : Presentation 05 : Theater 06 : Amusement	30/52 73/53 720/730 735 600/800/810/811/820	Set color Mode
		01 : sRGB 04 : Presentation 05 : Theater 08 : Dynamic	7800/7850 8300/9300	
		01 : sRGB 04 : Presentation 05 : Theater 06 : Living Room 08 : Dynamic	S1/S1H 830/835 7900/7950	
		01 : sRGB 04 : Presentation 05 : Theater 06 : Living Room 08 : Dynamic 11 : Black Board	54/74 61/81 740/7457/32/737 821/828 765/760/755/750	
		01 : sRGB 04 : Presentation 05 : Theater 06 : Game 08 : Sports 11 : Black Board 14 : Photo	S3/S4 62/82 X3(76) 6100/6000 S5/X5/83/822/83+/822+/EX90 260/280	
		01 : sRGB 04 : Presentation 05 : Theater 06 : Game 08 : Sports 10 : Customized 11 : Black Board 14 : Photo	1715/1710/1705/1700 1815/1811825	
		01 : sRGB 03 : Text 04 : Presentation 05 : Theater 06 : Game 08 : Sports 10 : Customized 11 : Black Board 14 : Photo	6110 6010 400W/410W G5350/G5300/G5150/ G5100/G5200W/G5000 X6/W6 1735W/1730W/1725/1720	

Set commands	Get commands	Parameter for set (Return code for get)	Models	Function
		01 : sRGB 04 : Presentation 05 : Theater 06 : Dynamic 08 : Sports 11 : Black Board 12 : White Board 14 : Photo	84/85/824/825/826W	
		01 : sRGB 04 : Presentation 05 : Theater 06 : Dynamic 08 : Sports 10 : Customized 14 : Photo	Z8000WU/Z8050W	
-	LAMP?	0-65535	All models	Return the lamp hour
LUMINANCE xx	LUMINANCE ?	00 : High 01 : Low	73/53/74/54 7800/7850 8300/9300 61/81 830/835 740/745/732/737 821/828 7900/7950 S3/S4 765/760/755/750 62/82 X3(76) 6100/6000 1715/1710/1705/1700 1815/1810/1825 S5/X5/83/822/83+/822+/EX90 260/280 6110/6010 400W/410W G5350/G5300/G5150/ G5100/G5200W/G5000 X6/W6 1735W/1730W/1725/1720 84/85/824/825/826W	Set brightness level
		00 : Nomal 01 : Eco	Z8000WU/Z8050W	
MUTE xx	MUTE?	ON : A/V Mute ON OFF : A/V Mute OFF	All models	Set A/V Mute
FREEZE xx	FREEZE?	ON : Freeze ON OFF : Freeze OFF	All models except 600/800/ 810/811/820	Set freeze
HREVERSE xx	HREVERSE?	ON : rear ON OFF : rear OFF	All models	Set rear projection
VREVERSE xx	VREVERSE?	ON : ceiling ON OFF : ceiling OFF	All models	Set ceiling projection

Set commands	Get commands	Parameter for set (Return code for get)	Models	Function
AUDIO xx	AUDIO?	01 **:** Audio1 02 **:** Audio2 03 **:** USB	600/800/810/811/820	Select audio input
		01 **:** Audio (Computer) 02 **:** Audio (Video)	30/52 73/53/74/54	
		00 **:** Audio 1 (Computer/DVI) 01 **:** Audio 2 (Computer) 02 **:** Audio 3 (DVI)	7800/7850 7900/7950	
		01 **:** Audio1 (When the S-Video is RCA. When the Video is mini) 02 **:** Audio2 (When the S-Video is mini. When the Video is RCA)	6100 6110	
		01 **:** Audio 1 (Internal speaker) 02 **:** Audio 2 (External output)	1715/1705 1735W/1725	
KEY xx	-	4A	All models except 600/800/ 810/811/820	Perfrom"Auto-sync" of a remote control button
		47		Perfrom"Freeze" of a remote control button
CCAP xx	CCAP?	00 **:** OFF 11 **:** CC1 12 **:** CC2 13 **:** CC3 14 **:** CC4 21 **:** TEXT1 22 **:** TEXT2 23 **:** TEXT3 24 **:** TEXT4	6100 6110	Select Closed Caption
		00 **:** OFF 11 **:** CC1 12 **:** CC2	83/822/83+/822+ 400W/410W G5350/G5300/G5150/ G5100/G5200W/G5000 84/85/824/825/826W Z8000WU/Z8050W	
FLWARNING xx	FLWARNING?	00 **:** ON 01 **:** OFF	6100 6110	Display setting of warning time of Air filter
FLTIME x1 x2		x1 Object of setting 00 **:** All objects 01 **:** Object 1 02 **:** Object 2 03 **:** Object 3 x2 Set time 0 **: 1-100 (100H)** 1 **: 101-200 (200H)** I 14 **: 1401-1500 (1500H)***	6100 6110	Setting of use time of air filter *The maximum value depends on the kind of the air filter and the upper bound value is different.
	FILTER?	0-65535	6100 6110	Acquisition of use time of air filter
ZOOM xx		MIN : Adjusts it to Tel side continuously. MAX : Adjusts it to Wide side continuously. INC : Adjusts it to Wide side by one step. DEC : Adjusts it to Wide side by one step. OFF : A continuous adjustment is stopped.	Z8000WU/Z8050W	Electric zoom is adjusted.
	ZOOM?	VOID		

Set commands	Get commands	Parameter for set (Return code for get)	Models	Function
FOCUS xx		MIN：Adjusts it to Short focus side continuously. MAX：Adjusts it to Long focus side continuously. INC：Adjusts it to Long focus side by one step. DEC：Adjusts it to Short focus side by one step. OFF：A continuous adjustment is stopped.	Z8000WU/Z8050W	Electric focus is adjusted.
	FOCUS?	VOID		
LENS xx		MIN：Adjusts it to Lower side continuously. MAX：Adjusts it to Up side continuously. INC：Adjusts it to Up side by one step. DEC：Adjusts it to Lower side by one step. OFF：A continuous adjustment is stopped.	Z8000WU/Z8050W	Vertical lenz sift is adjusted.
	LENS?	VOID		
HLENS xx		MIN：Adjusts it to Left side continuously. MAX：Adjusts it to Right side continuously. INC：Adjusts it to Right side by one step. DEC：Adjusts it to Left side by one step. OFF：A continuous adjustment is stopped.	Z8000WU/Z8050W	Horizontal lenz sift is adjusted.
	HLENS?	VOID		

8.2.Command table 2 (Step parameter)

Set commands	Initial value	Steps	Models	Function
VOL xx	15	0 - 31	600/800/810/811/820	Set the volume level
	10	0 - 20	720/730/735	
	10	0 - 20	30/52	
	10	0 - 20	73/53/74/54	
	15	0 - 31	8300/9300	
	15	0 - 31	7800/7850/7900/7950	
	10	0 - 20	S1/S1H	
	10	0 - 20	61/81	
	15	0 - 30	830/835	
	10	0 - 20	740/745/732/737765/760/755/750	
	10	0 - 20	821/828	
	10	0 - 20	S3/S4	
	10	0 - 20	62/82/X3(76)	
	10	0 - 20	6100/6000/6110/6010	
	10	0 - 20	1715/1710/1705/1700	
	10	0 - 20	1815/1810/1825	
	10	0 - 20	S5/X5/83/822/83+/822+/EX90	
	10	0 - 20	260/280	
	10	0 - 20	G5350/G5300/G5150/G5100/G5200W/ G5000	
	10	0 - 20	400W/410W	
	15	0 - 20	1735W/1730W/1725/1720	
	10	0 - 20	S6/X6/W6	
	10	0 - 20	84/85/824/825/826W	
TONEH xx	0	-6 - 6	600/800/810/811/820	Set bass level
	0	-8 - 8	720/730/735	
	0	-8 - 8	30/52	
	0	-6 - 6	8300/9300	
	0	-6 - 6	7800/7850/7900/7950	
	0	-6 - 6	830/835	
TONEL xx	0	-6 - 6	600/800/810/811/820	Set bass level
	0	-6 - 6	8300/9300	
	0	-6 - 6	7800/7850/7900/7950	

Set commands	Initial value	Steps	Models	Function
BRIGHT xx	0	-30 - 30	600/800/810/811/820	Set brightness
	0	-64 - 64	720/730/735	
	0	-64 - 64	30/52	
	0	-64 - 64	73/53/74/54	
	0	-30 - 30	8300/9300	
	0	-30 - 30	7800/7850/7900/7950	
	0	-20 - 20	S1/S1H	
	0	-32 - 32	61/81	
	0	-30 - 30	830/835	
	0	-12 - 12	740/745/732/737/765/760/755/750	
	0	-32 - 32	821/828	
	0	-12 - 12	S3	
	0	-12 - 12	62/82/X3(76)	
	0	-24 - 24	S4	
	0	-24 - 24	6100/6000/6110/6010	
	0	-24 - 24	1715/1710/1705/1700	
	0	-24 - 24	1815/1810/1825	
	0	-24 - 24	S5/X5/83/822/83+/822+/EX90	
	0	-24 - 24	260/280	
	0	-24 - 24	G5350/G5300/G5150/G5100/G5200W/ G5000	
	0	-24 - 24	400W/410W	
	0	-24 - 24	1735W/1730W/1725/1720	
	0	-24 - 24	S6/X6/W6	
	0	-24 - 24	84/85/824/825/826W	
	0	-24 - 24	Z8000WU/Z8050W	
CONTRAST xx	0	-30 - 30	600/800/810/811/820	Set contrast
	0	-32 - 32	720/730/735	
	0	-32 - 32	30/52	
	0	-32 - 32	73/53/74/54	
	0	-30 - 30	8300/9300	
	0	-30 - 30	7800/7850/7900/7950	
	0	-30 - 30	S1/S1H	
	0	-32 - 32	61/81	
	0	-30 - 30	830/835	
	0	-32 - 32	740/745/732/737/765/760755/750	
	0	-32 - 32	821/828	
	0	-12 - 12	S3	
	0	-12 - 12	62/82/X3(76)	
	0	-24 - 24	S4	
	0	-24 - 24	6100/6000/6110/6010	
	0	-24 - 24	1715/1710/1705/1700	
	0	-24 - 24	1815/1810/1825	
	0	-24 - 24	S5/X5/83/82283+/822+/EX90	
	0	-24 - 24	260/280	
	0	-24 - 24	G5350/G5300/G5150/G5100/G5200W/ G5000	
	0	-24 - 24	400W/410W	
	0	-24 - 24	1735W/1730W/1725/1720	
	0	-24 - 24	S6/X6/W6	
	0	-24 - 24	84/85/824/825/826W	
	0	-24 - 24	Z8000WU/Z8050W	

Set commands	Initial value	Steps	Models	Function
TINT xx	0	-15 - 15	600/800/810/811/820	Set tint
	0	-15 - 15	720/730/735	
	0	-32 - 32	30/52	
	0	-32 - 32	73/53/74/54	
	0	-15 - 15	8300/9300	
	0	-5 - 5	7800/7850/7900/7950	
	0	-32 - 32	S1/S1H	
	0	-32 - 32	61/81	
	0	-15 - 15	830/835	
	0	-32 - 32	740/745/732/737/765/760/755/750	
	0	-32 - 32	821/828	
	0	-32 - 32	S3/S4	
	0	-32 - 32	62/82/X3(76)	
	0	-32 - 32	6100/6000/6110/6010	
	0	-32 - 32	1715/1710/1705/1700	
	0	-32 - 32	1815/1810/1825	
	0	-32 - 32	S5/X5/83/82283+/822+/EX90	
	0	-32 - 32	260/280	
	0	-32 - 32	G5350/G5300/G5150/G5100/G5200W/ G5000	
	0	-32 - 32	400W/410W	
	0	-32 - 32	1735W/1730W/1725/1720	
	0	-32 - 32	S6/X6/W6	
	0	-32 - 32	84/85/824/825/826W	
	0	-32 - 32	Z8000WU/Z8050W	
VKEYSTONE xx	0	-60 - 59	600/800/810/811/820	Set vertical keystone value
	0	-30 - 30	720/730/735	
	0	-30 - 30	30/52	
	0	-30 - 30	73/53/74/54	
	0	-64 - 64	8300/9300	
	0	-64 - 64	7800/7850/7900/7950	
	0	-30 - 30	S1/S1H	
	0	-30 - 30	61/81	
	0	-64 - 64	830/835	
	0	-30 - 30	740/745/732/737/765/760755/750	
	0	-30 - 30	821/828	
	0	-60 - 60	S3/S4	
	0	-60 - 60	62/82/X3(76)	
	0	-60 - 60	6100/6000/6110/6010	
	0	-60 - 60	1715/1710/1705/1700	
	0	-90 - 90	1815/1810/1825	
	0	-60 - 60	S5/X5/83/822/83+/822+/EX90	
	0	-60 - 60	260/280	
	0	-80 - 80	G5350/G5300/G5150/G5100/G5200W/ G5000	
	0	-30 - 30	400W/410W	
	0	-60 - 60	1735W/1730W/1725/1720	
	0	-60 - 60	S6/X6/W6	
	0	-60 - 60	84/85/824/825/826W	
	0	-60 - 60	Z8000WU/Z8050W	

Set commands	Initial value	Steps	Models	Function
HKEYSTONE xx	0	-29 - 29	600/800/810/811/820	Set horizontal keystone value
	0	-39 - 39	7800/7850/7900/7950	
	0	-64 - 64	830/835	
	0	-60 - 60	1815/1810	
	0	-40 - 40	G5350/G5300/G5150/G5100/G5200W/ G5000	
	0	-40 - 40	Z8000WU/Z8050W	

9.Appendix

9.1.Communication specification.

A projector and a computer can be connected using a serial or USB port. The projector can be remotely controlled by sending commands to the projector.

Serial Connection (600/800/810/811/820,30/52,73/53/74/54,8300/9300,7800/7850,S1/S1H,61/81,830/835/821,828/7900/7950,62/82,6100/6000,1815/1810/1825,83/822/83+/822+,280,6110/6010,400W/410W,G5350/G5300/G5150/G5100/G5200W/G5000,84/85/824/825/826W, **Z8000WU/Z8050W)**

- Select RS-232C at Advanced Setting of the Menu.
- Communication condition

Baud rate	: 9600 bps
Data length	: 8 bits
Parity	: No
Stop bit	: 1 bit
Flow control	: No

- Connector : D-sub 9pin
- Projector input : Control(RS-232C)

<Projector> <Computer>

Projector		PC serial cable	Computer	
GND	5	———	5	GND
RD	2	◄———	3	TD
TD	3	———►	2	RD

Signal name	Function
GND	Common ground
TD	Transmitted data
RD	Received data

*DTR and DSR are not used.

USB Connection (600/800/810/811/820,720/730/520,73/53/74/54,735,8300/9300,7800/7850/61/81,830/835,740/745/732/737,821/828,7900/7950,S3/S4,765/760,755/750,62/82/X3(76),1715/1710/1705/1700,S5/X5/EX90,260,G5350/G5150/S6/X6/W6,1735W/1730W/1725/1720)

- For 600/800/810/811/820, select USB at Advanced Setting of the Menu.
- For 730/720/520/735/740/745/732/737/S3/765/760/755/750/X3(76)/S4/1715/1710/1705/1700/S5/X5/260,select Link 21L at Advanced Setting of the Menu.
- For 8300/8350/9300,select USB at Advanced2 Setting of the Menu.
- For 61/81/830/835/821,select USB at Extended Setting of the Menu.
- For **S6/X6/W6/1735W/1730W/1725/1720**,select Wireless Mouse and select Link 21Lat Extended Setting of the Menu.
- Epson USB COM Driver has to be installed in your computer to use USB for communication. A COM port is added to your computer, when the projector and your computer is connected by a USB cable. The added COM is listed at PORT (COM/LPT) in the device manager tab of System in Control Panel as EPSON COM Emulation port (COMn).

USB COM Driver	Models
EMPUSBSetup.exe	600/800/810/811/820/720/730/520/73/53/74/54/735
EMPUSB2Setup.exe	7800/7850/8300/9300/61/81/830/835/740/745/732/737/821/828/7900/7950/S3/765/760/755/750/62/82/X3(76)S4/1715/1710/1705/1700/S5/X5/EX90/260/**S6/X6/W6/1735W/1730W/1725/1720**

- Connector : USB(B type)

<Projector> <Computer>

Revision History

Revision	Issued Date	Page	Description
A	Sep 16,2005	All pages	First release.
B	Oct 19,2005	All pages.	Correction of disclaimer. Model EMP-755/750 addition.
C	Nov 4,2005	All pages.	Model EMP-62/82/X3(76) addition.
D	Apr 17,2006	All pages.	Model EMP-S4 addition.
E	AUg 11,2006	All pages.	Model EMP-6100/6000 and EMP-1715/1710/1705/1700 addition.
F	Mar 19,2007	All pages.	Model EMP-1815/1810 and EMP-S5/X5/83/822 addition.
G	Jun 4,2007	P.5	Addition of “Applicable Model”.
H	Dec 21,2007	All pages.	Model EMP-260/280 addition.
I	Apr 23, 2008	All pages. P.6	Model EMP-6110/6010, EMP-400W, EMP-83+/822+/EX90,EMP-1825, and EB-G5350/G5300/G5150/G5100/G5200W/G5000 addition. Addition of Error status.
J	Sep 19, 2008	All pages.	Model EB-1735W/1730W/1725/1720, EB-S6/X6/W6 addition.
K	Feb 25, 2009	All pages.	Model EB-Z8000WU/Z8050W addition.
L	Mar 25, 2009	All pages.	Addition of command of EB-Z8000WU/Z8050W Model EB-410W and EB-84/85/824/825/826W addition.